Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.





Federal-State Cooperative
Snow Surveys and Water Supply Forecasts
for

Platte and Arkansas Drainage Basin

SOIL CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
AND

COLORADO AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, National Park Service, State Engineers of Colorado, Wyoming and New Mexico and other Federal, State and local organizations.

AS OF

APRIL 1, 1955

UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

TO RECIPIENTS OF COOPERATIVE SNOW SURVEY AND WATER SUPPLY FORECAST REPORTS:

Forecasts by U. S. Weather Bureau of total annual streamflow October-September, inclusive, at more than 300 gaging stations are issued monthly January through May in the publication WATER SUPPLY FORECASTS FOR THE WESTERN UNITED STATES.

Weather Bureau forecasts of runoff presented in that bulletin are computed from procedures based on mathematical analysis of the relation between precipitation and runoff.

The Weather Bureau bulletins may be secured by writing to:

Hydrologist in Charge River Forecast Center U. S. Weather Bureau 712 Federal Office Building Kansas City 6, Missouri

For current information on local river and flood conditions, reference should be made to the appropriate River District Office listed below:

Meterologist in Charge.......Arkansas River and Weather Bureau Airport Station tributaries in Municipal Airport Colorado Pueblo, Colorado.

Platte and Arkansas Rivers

FEDERAL-STATE COOPERATIVE

SNOW SURVEYS AND WATER SUPPLY FORECASTS

for

PLATTE-ARKANSAS RIVERS BASIN

Issued

April 9, 1955

Report Prepared By
Homer J. Stockwell, Snow Survey Leader
and
Jack N. Washichek, Assistant Snow Survey Leader

Soil Conservation Service and Colorado Agricultural Experiment Station Fort Collins, Colorado

Issued By

Kenneth W. Chalmers State Conservationist Soil Conservation Service Sherman S. Wheeler
Director
Colorado Agricultural Experiment Station

General Series Paper No. 608 Colorado Agricultural Experiment Station TIME

WATER SUPPLY OUTLOOK PLATTE-ARKANSAS DRAINAGE BASIN April 1, 1955

The present outlook for irrigation water supply over the Platte and Arkansas Drainage Basins is fair to poor. Seasonal snow accumulation in mountain areas range from 70 to 100 percent of normal. Assuming that snowfall will be near average for the remainder of the winter, runoff is expected to be about three-quarters of normal for the 1955 irrigation season. However, streamflow is not the whole picture. In estimating the water supply, the extreme shortage in reservoir storage must be considered. The deficiency in storage from the past ten-year average is estimated at three-quarters of a million acre-feet for these two basins in Colorado and Wyoming. This is almost equal to the average annual flow of all South Platte tributaries as they emerge from the mountains. Carry-over storage is a major factor this year on all watersheds. Soil in irrigated areas is dry and streamflow is below average.

NORTH PLATTE RIVER

On the Sweetwater River, snow cover is about 80 percent of normal. Runoff in Pathfinder Reservoir next summer will be substantially below average.

Snow cover on the North Platte watershed in Colorado and Wyoming is 85 percent of normal on the whole with near normal snow along the Continental Divide in Colorado. A departure from normal is very heavy snow in the Laramie Peaks District south of the river between Casper and Douglas. On the upper watershed the snow cover now is only five percent greater than on April 1, 1954. Inflow to Seminoe Reservoir this year is expected to be greater than for a year ago at about three-quarters of normal. Storage in the four major reservoirs on the North Platte in Wyoming now totals 1,000,000 acre-feet as compared to 1,320,000 acre-feet a year ago. Most of this water is assigned to the Alcova Project with very little available for the irrigated areas of eastern Wyoming and western Nebraska. Irrigation water supplies in the latter area will be dependent on 1955 summer flows supplemented by rainfall. Shortage of irrigation water may be expected.

On the Laramie River watershed, the water supply outlook is less favorable than for the North Platte. Snow cover is about 30 percent of normal. Wheatland Reservoir is almost empty as compared with a usual carry-over of about 35,000 acre-feet. The watershed needs a lot of additional snow and rainfall within the next few months.

Scils in irrigated areas are dry and streamflow is below average.

The state of the s

-1-1

person when it will will be up to a more between it made

SOUTH PLATTE

As of April 1, the seasonal snowfall on the headwaters of the South Platte and its tributaries ranges from 75 to 100 percent of the past tenyear average. As compared to April 1, 1954 it is only about 10 percent greater. There was practically no snowfall during April in 1954. A similar pattern of rainfall followed during May, June and July last year. Assuming that spring and summer rainfall is near average for 1955, more summer flow should be expected in 1955 than in 1954. Forecasts of streamflow for the April-September 1955 period range from 65 to 80 percent on the Poudre River, Big Thompson River, Saint Vrain River, Boulder Creek and Clear Creek drainages. Since snowcover is near normal on the Upper South Platte watersheds streamflow forecasts are slightly higher.

Even if natural streamflow is well above 1954, the extreme shortage in carry-over storage, as compared to 1954 and average, points to a repetition of water shortages in 1955. Twenty-eight large municipal and irrigation reservoirs show a total storage of 265,000 acre-feet as compared to 475,000 on April 1, 1954 and over one-half million acre-feet for the past ten-year average. Storage is only 40 percent of the mean and one-half of a year ago. In Denver's four major reservoirs there is now stored 64,000 acre-feet as compared with 134,000 a year ago and 170,000 for a ten-year average.

The above figures do not include reservoirs on the Colorado-Big Thempson Project. This provided about half of the water supply for the area served by Northern Colorado Conservancy District in 1954. It will be difficult to provide as much water in 1955 as in 1954 from this source, If it is provided, the project will be out of water for 1956.

Storms during February and March improved soil moisture conditions in irrigated areas slightly, particularly near the mountains. However, in general, reports indicate that irrigated soils are dry for this time of year.

ARKANSAS

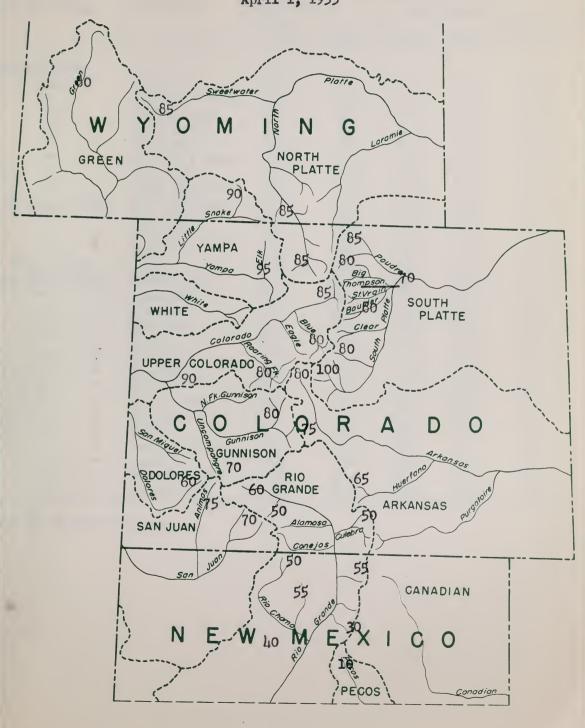
As of April 1, there is another year of short water supply in view for the irrigated section along the Arkansas River. Reservoir storage is about the same as a year ago. This means that there is practically no water for early irrigation which is usually necessary in the Arkansas Valley. Snow cover in the mountains above Salida improved since February 1 and is now about 80 percent of normal.

There has been a lot of early season snowmelt on the Sangre de Cristo Range. Snow cover on the headwaters of the Huerfano, Cucharas and Purgatoire rivers is now only about 50 percent of normal. If snowfall for the remainder of the season is near average the summer flow of the Arkansas River at Salida will be about 75 percent of normal. Water users should make plans to limit their requirements for the 1955 season. Even if mountain snowfall should be well above the usual amount during the spring months water shortage will occur. A combination of heavy mountain snows and rains over the valley for an extended period is needed to improve the current outlook.

* = _ Mo. the second section with a second seco area and beginning the standard and area of the - 14-3ml the same of the sa The state of the s A 1 - 10 - 10 - 10 - 10 - -THE RESERVE AND ADDRESS OF THE PARTY OF THE A principal trade on April 12 March 1981 April 1981 April 1981

WATER CONTENT OF SNOW ON THE WATERSHEDS OF PLATTE, ARKANSAS, UPPER COLORADO AND RIO GRANDE BASINS BASED ON SNOW SURVEYS MADE APPROXIMATELY FIRST DAY OF MONTH

In Percent of Normal April 1, 1955





STATUS OF RESERVOIR STORAGE PLATTE-ARKANSAS BASIN, April 1, 1955 USABLE THOUSANDS ACRE FEET IN STORAGE BASIN AND STREAM RESERVOIR CAPACITY About April 1 (Thous. 10-year Avg. * A.F.) 1955 1954 1953 1943-52 MISSOURI RIVER 18.6 3.1 5.9 Poudre River Windsor Lal 11.6 11 11 Cache la Poudre 9.5 5.0 6.0 7.1 7.7 111 7.8 5.3 11 11.6 Fossil Creek 3.5 10.8 11 8.2 3.8 Terry Lake 4.1 4.1 4.7 11 Halligan 6.4 2.5 3.1 3.7 1.2 11 11 Chamber's Lake 8.8 1.5 1.5 1.7 2.3 11 Cobb Lake 34.3 0.0 7.0 11.2 6.7 11 11 Black Hollow 8.0 0.9 3.4 4.1 3.9 Lake Loveland 7.5 Thompson River 14.3 4.7 6.1 5.2 11 44.0 11 11 Boyd Lake 0.1-8.7 16.8 21.7 11 11 ŧŧ Lone Tree 9.2 7.1 7.3 7.1 6.6 11 11 11 Mariano 5.4 0.3 3.7 3.7 2.7 St. Vrain River Union 12.7 1.0 6.1 9.1 7.6 South Platte River Eleven Mile 81.9 17.3 81.9 81.9 80.9 11 11 11 Cheeseman 79.0 22.7 28.7 54.7 56.2 18.9 11 11 Marston 13.2 14.4 13.3 15.1 11 11 11 Barr Lake 32.2 14.9 17.4 23.8 20.2 # 11 Milton 24.4 0,8 4.1 14.2 13.3 11 11 11 Standley 18.5 5.0 6.9 12.5 11.0 11 11 11 Marshall 10.3 0.8 0.8 1.5 2.7 11 11 11 Antero 33.0 10.2 10.2 18.5 10.2 12 11 17 Horse Creek 20,6 5.6 9.5 12.8 12.0 11 12 11 Riverside 57.5 53.9 54.5 17.0 48.2 11 11 Empire 37.7 13.5 29.6 32.5 31.7 11 Jackson Lake 35.4 34.3 33.8 34.1 33.3 11 11 11 Prewitt 13.5 25.4 32.8 7.6 25,1 18 n 11 Point of Rocks 70.0 56.1 62.2 63.5 40.6 Julesburg

28.2

21.2

22.1

21.9

21.3

^{*}Some for shorter periods

THE A SHOW HERE WAS A SHOWN IN THE RESERVENCE OF	
S. Elite A Contact Programme & Contract R	JULIA BU ELLE
TATELL FRAL REL ROLL THE STATE OF STREET STATES	
TOTAL LISE MY NOT THE L	
	THE STREET
Madest Lot For Sall Soft And State	
Tall for the land the land of the land	
The Sale Sale Sale Sale and Sales	**
Tall fish fish left fish military	100
	W W1
CAT SAN NAC THE THE SAN NAMED IN	. 90
the field of the tight interest and the	Die Tresono L
Take Bull til -in the train of the train	
	9
	Die Verle Eller
	AT THE WAY
TANK TANK TANK TANK CAMPANIED IN	4.
JACK TANK ALM FAIR SAIL HAR THE P	
and the state of the state of	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
The field that the souled the	
	:
ASS AND AND AND SHARES	
Lis Lis till till till till	

A DOLL TO THE REAL PROPERTY AND ADDRESS OF THE PARTY AND ADDRESS OF THE

-4RESERVOIR STORAGE (Cont.)

BASIN AND STREAM	RESERVOIR	USABLE CAPACITY	THO	CRE FEET			
		(Thous. A.F.)	1955	1954	1953	10-year Avg.* 1943-1952	
North Platte River " " " " " " " " " " " " " " " " " " " " " " " " Laramie River ARKANSAS RIVER Arkansas River	Kingsley Sutherland Minatare Alcova Seminoe Guernsey Pathfinder Wheatland Twin Lakes	1995.0 185.0 60.8 190.0 1025.0 46.0 1045.5 70.4	1192.0 60.0 19.0 171.8 312.0 36.9 480.1 0.5	1571.0 49.0 36.2 187.3 235.7 24.3 871.3 12.0	1796.0 52.0 25.0 155.7 563.2 39.4 866.5 32.5	1368.8 49.1 24.7 96.7 405.8 41.9 593.3 43.8	
" " " " " " " " " " " " " " " " " " " "	Sugar Loaf Clear Greek Meredith Horse Creek Adobe Creek Cucharas John Martin Great Plains Model	17.4 11.4 41.9 26.9 61.6 40.0 655.0 150.0	5.1 1.9 0.0 0.0 0.0 0.0 0.0 5.7 0.0	13.7 12.9 0.0 0.0 0.0 0.0 15.6 0.0 20.8	5.5 2.2 0.0 0.0 0.0 0.0 20.4 20.1 1.1	8.5 6.1 21.8 10.9 33.0 5.5 78.6 75.8 3.1	
COLORADO-BIG THOMPSON Blue River Colorado River Poudre River Big Thompson	Green Mt. Granby Horsetooth Carter Lake	146.9 467.5 143.5	42.6 156.2 92.9 68.2	54.8 372.9 124.0 21.5	86.9 424.0 126.0	59°5 * *	

*Some for shorter periods

April .

(-/sen) and the surface.

	i .	nia.		THORUD PHORUD - MOON)		(4072 SA (Vela
1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	1-8/1/ 0-25 0-25 1-7/1 5-6/6 11/1 2-16/8	1971.0		0.00 0.00 0.00 0.00 0.00 0.00 0.00	CALCOLAR DIACTORIAN CALCOLAR C	# # # # # # # # # # # # # # # # # # #	
	9 85 30 8 50 0 50 0 50 0 50 0 50 0	1,8 1,25 9,22 7,51 7,51 8,51 7,71 7,72	100000000000000000000000000000000000000	1012 1012 1012 1013 1013 1013 1013 1013		0	10 10 10 10 10 10 10 10 10 10 10 10 10 1
3.43	150 m		6/30 8/30 5/80	1 Au 1 Au 1 Au 1 Au			

wholes yours on and

PLATTE-ARKANSAS DRAINAGE BASINS SUMMARY OF APRIL 1 SNOW SURVEYS AND COMPARISON OF DATA WITH THAT OF PREVIOUS YEARS

April 1, 1955

WATERSHEDS	No. of courses	Years of	April 1, 1955 Water Content as percent of				
	Averaged	Record	1954	1953	Average		
PLATTE RIVER Sweetwater North Platte River Laramie River South Platte River* Poudre River Big Thompson River St. Vrain River Boulder Creek Clear Creek	3 15 8 5 8 3 3 3	5-18 5-19 5-19 6-19 4-19 6-17 5-19 5-19	65 104 86 144 100 102 83 106	112 111 85 138 101 96 81 92 88	82 87 72 108 82 79 64 80 77		
ARKANSAS RIVER	8	6-19	91	85	73		
COLORADO-BIG THOMPSON Colorado River** Willow Creek Frazer River Blue River	6 3 5 7	6-19 6-19 4-19 4-19	101 106 119 119	103 113 102 91	84 83 87 80		

^{*} Above Denver

**Above Granby

PRECIPITATION DATA									
WA TERSHED	STATE	Precipitation* Oct. 1 to March 31	Departure from Normal	Precipitation* March	Departure from Normal				
North Platte South Platte Arkansas	Wyoming Colorado Colorado	4.09	-1.77	0.99	-0.31				

^{*}Average selected high elevation stations

THE RESERVE OF THE PARTY OF THE

THE LE ISON

Teach to the last of the last	0.	to be	INVESTIGATION.	12111111
10 10 10 10 10 10 10 10 10 10 10 10 10 1	201 201 201 201 201 201 201 201 201			ENTE TOTAL THE PARTY OF THE PA
	.s.	02411		UVE GENERAL
TOL SAL SAL JE	2011 2011 2011 2011	12-3 17-3 17-4 18-4		

1 mm 5 mm 5 mm 5

	Mary of the Mary		LIGHT LINES		
June 1	(Gran		27 1 . 190 ·	- LT.	
15,0=	8950	11177-	10(4)		DINCY OF
			Charles and There	committee of the commit	

PLATTE-ARKANSAS DRAINAGE BASINS STREAM FLOW FORTCAST, APRIL 1, 1955

		il-September,		reanflow,	
Basin and Stream	Forecast	% of 10-year		the same of the sa	10-year Ayg.
	1955	Average	1953	1952	1943-1952
NORTH PLATTE					
Sweetwater at Alcova	63,000	73	42,000	100,000	
North Platte at Saratog		77 75	428,000	1,053,000	
Medicine Eow near Hanna Laramie at Jelm	87,000 71,000*		60,000 64,000*	144,000 124,000	
Laramie at Lookout	53,000	60	28,000	96,000	
SOUTH PLATTE	•		·	·	
Poudre at Canon	170,000*	78	114,000*	217,000	
Big Thompson at Drake	75,000%	64	60,000*	98,000	
Saint Vrain at Lyons Boulder at Orodell	65,000 47,000	72 83	61,000 52,000	121,000 75,000	
Clear Creek at Golden	115,000*	82	117,000%	170,000	
ARKANSAS					
Arkansas at Salida Arkansas at Pueblo Cucharas at La Veta	275,000* 240,000* 9,000	80 69 64	320,000* 250,000* 5,000	533,000 480,000 21,000	* 347,000* 14,000
Purgatoire at Trinidad	20,000	fifi	36,000	53,000	45,000

*Including Diversions

AND THE VIEW OF THE PARTY OF

1810 5075- September 191	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			/54 - T	1-12-12-12-12-12-12-12-12-12-12-12-12-12
					SHAP TO S
200, 30			17 12 21 21	2018	ATTENDED TO STATE OF THE STATE
100 pt 1	000, 751 000, 00 000, 00 00 000, 00 00 00 00 00 00 00 00 00 00 00 00 00	000 (III 000 (III 000 (III 000 (III 000 (III	40		to and it imports the common to the common t
					Level
107,17	100 July 1	OF THE PARTY OF TH			

- I The Town

PLATTE-ARKANSAS RIVERS SMOW SURVEYS April 1, 1955

April 1, 1955 Snow Cover Measurements									
During Broke						ver Me			
Drainage Basin	Manufa and	777	Data		1955	-	Past	Record	37.
and	Number	Elev.			Water	ToTa de acce	0	-+ /7- \	Years
Snow Course			of					nt (In.)	of
			Survey	(In.)	(In.)	11754	1753	Average	Record
				PLATTE	RIVER				
SWEETWATER RIVER									
Grannier Meadows		9000		47	14.4	20.8	12.1	14.3	18
South Pass*	8G3	9000		48	14.6	21.8	12.3	14.6	15
Larsen Creek	9G6	9000	3/29	30	5.4	10.4	6.5	13.3	5
NO. PLATTE RIVER									
Cameron Pass	5J1	10300	3/31	58	18.9	22.0	18.8	21.7	19
Park View	6J2	9200	3/30	33	7.8	7.1	5.8	10.3	19
Columbine Lodge	633	9300	3/29	63	22.3	15.0	23.7	23.2	19
Willow Cr. Pass*	6J5	9500	3/30	43	11.2	11.7	10.5	13.2	17
Northgate	6J7	8500	3/30	21	4.8	5.9	3.8	6.1	5
Bottle Creek	6H8		3/28	45	14.1	13.9	13.3	14.8	19
Webber Spring	6H9	9000	3/28	54	16.7	15.5	16.1	19.6	19
Old Battle	6H10		3/28	72	25.3	25.9	26.0	32.4	19
N.French Creek	6H4	10200		68	24.1	27.0	23.6	30.0	17
N.Barrett Creek	6H5		3/29	56	18.8	17.7	13.6	19.9	19
Ryan Park	6H6		3/29	39	11.7	10.2	6.4	11.4	19
Spring Creek	6н7		3/30	46	14.7	13.6	13.6	19.0	6
Albany	6н11		4/3	33	9.7	9.7	12.4	15.1	6
La Bonte	5G2		4/1	33	9.9	6.4	0.0	6.7	6
Boxelder	5G1	9000	3/29	33	8.4	9.1	9.2	7.6	5
IARAMIE RIVER									
Roach	6J8	9800		45	15.7	19.3	12.6	19.0	15
Deadman Hill	516	10200		52	13.7	14.2	10.7	15.0	18
McIntyre	5J15	9100		32	8.3	9.2	NS	12.4	5
Brooklyn Lake	6H1	10200		53	18.7	22.6	24.7	25.1	19
Fox Park	6H12	9200		15	4.0	6.3	4.6	8.2	19
Pole Mtn. #2*	5H1		3/31	18	4.8	3.7	1.6	5.0	19
Libby Lodge	6н3	8700		26	7.1	9.1	10.2	10.1	19
Hairpin Turn	6H2	9500		29 .	8.5	9.6	11.8	11.9	19
Albany	6H11	9400	4/3	33	9.7	9.7	12.4	15.1	6
POUDRE RIVER									
	511		3/31		18.9		18.8		19
			4/3					8.1	19
	513	8600	4/3	~~	0.2	21 0	20 0	2.6	19
Deadman Hill			3/31	52	13.7	14.2	10.7	15.0	18
Lake Irene*	5110	10600	3/30	64	11.1	Tiet	20.4	21.9	17
Hour Glass Lake	DOTT.	9500	1./2	21	0 • I	5:0	7.8	8.8 9.7	15
Red Feather Lost Lake	5J11 5J20 5J23	9000	1./3	36	13.7 17.7 6.1 8.1 9.8	0.4	7.8	12.0	6 4
TOSC TOYG	2023	7,000	4/3	50	7.0	102	1.0	1200	4

*On adjacent drainage NS - No survey

MATERIAN LIVERS S OF SOUTH

			150, 50	300.0	Liver	n same Linear		
				3500 JE 3500 JE 1381 1481				
	The same	1634	-	107	-			thunses beth
17.007		-		TALLS		THE WALL		Leta
	100000	WINE T Y		F 70 0	1==0	301		sampo) work
	- 7/			(100)	- 1115			
			1204	140000				
				EGU 3	27402			
	- 12							STEE STATISTE
35			0,05	N. P.E	1794 -	3/10 2000		minutes March
35	Swill	5417	5415	1306		F/2 (800)		Joseph Pages
		2+4	Sar	1.1				Treated Control
	. *		÷					erre moin on
9.8	2113	5.01	0.15			1570 9271	1762	Current Past
01 01			(In	7.0			155	Mark Their
	10.00		1.56	1,455	E 1			Columnia Lotine
TA	9450	3101	7.25	10000				NOW AND MALEN
	543	3.65	9×6	3		TAXE DOM:	PEX	destroit.
		CHE	Sect.	g 41.				
	7417		200	1,31				SETTION TO SHAW
		0,36	3			SULE TRIAD		
Part 12 14 14 14 14 14 14 14 14 14 14 14 14 14			9.50	25.42	10.0	THE STATE OF STATE		Married Creek
			LIL	0.41		SELECT 00 LP		Vertil drewell.
				Tall	15	100 LOS		PER CHAIN
	0.00	200			- 10	DEAT TIDDY		SHELL CHEL
	15.67	dest.	DO	7.00		ELA DIA		
20				6.3	100			de Serie
		8,0		1.				Section.
								SVIN SHULKE
Tr.	15.6	0.72	19.3	15-7		ELL PORT		tta solf
	1150	1.04	S. All	9052		LEVE OUSEL		Ilin messet
				Sec.		7 2010	1.5	Mothitate
		Full:	3,35			By United	0.0	riskd myliforest
	5.0	0.	14/3			TV 0728	SELLS	NAME AND
	5.0 0.3 1.07	3/12 "	348			TEN MIL		2011 100, 924
	TAGE		283	16T		IN TOTAL		I WASTE
	10,14	2433 0	the same	543	V	5/10 000		CON CLOSE
	Tell	U ₄ SE	301	100	RE	\$201 LJ3	7019	Mines
								SEVER POLICE
	15.15		0,58	0.031		12/10 30/01	25.7	CALLERO PLES
67	7.15 7.15 7.3			5.31 4.1		.000 4/3		Charlette Lake
	148	140 .	I-D	540 5405		E/3 0033		150000 SE
	(7, 8,C	7 a Cal	5105	7.05	100	ICAM PAR	25.7	TITLE SUCLERY
	K. III	140 7.65 1105	1.15	CTL	23	DEVE PEACE	2577	Lite from
	4.3	148 0.1		L.		E/1 0039	2003	each mall -
200000000000000000000000000000000000000		0.67	N.C.	L.		1/2 (00)	CARG	2017/11/2 11/2
PT.	7,00	8.	E-e-	3.4	SE.	that price	5023	Lore Later

ein adjacent delleage AS - No sarky PLATTE-ARKANSAS RIVERS SNOW SURVEYS
April 1, 1955

April 1, 1955									
Drainage Basin			Snow Cover Measurement 1955 Fast Record						
and		-	Date of		Water	105	o recor	<u>u</u>	Years
Snow Course	Number	Elev.	Survey	Depth	Content	Water	Conten	t (Tn.)	of
bhow obar be	1		Dai vey	(In.)	(In _e)	1954		Average	Record
BIG THOMPSON RIVER		<u> </u>		(2110)	(2::0)	-774	-1//		110001 0
Lake Irene*	5J10	10600	3/30	64	17.7	17.1	20.4	21.9	17
Hidden Valley	5J13	9550	3/31	35	9.1	10.8	9.4	12.2	14
Deer Ridge	5J17	9050	3/31	18	5.2	3.7	3.4	6.3	6
Longs Peak	5J22	10500	3/27	41	9.7	7.4	7.5		3 2
Two-Mile	5J26	10400	3/31	46	11.8	13.8	13.3	-	2
ST. VRAIN RIVER Wild Basin Copeland Lake Ward	5J5 5J18 5J21	10000 8600 9500	3/31 3/30 4/2	35 13 19	8.6 4.3 4.4	11.4	13.1 3.3 5.2	14.5 6.0 6.7	19 6 5
	-		,						
BOULDER CREEK E.Port.Moffat T. University Camp Moffat Boulder Falls	5K1 5J8 5J12 5J25	9400 10300 9400 10000	3/30 4/1	16 61 21 40	4.3 17.6 6.5 15.4	2.9 19.3 4.7 10.6	4.8 19.5 6.7 13.8	3.8 22.2 9.7	19 17 5 3
CLEAR CREEK									
Loveland Pass Grizzly Peak* Empire Berthoud Falls Clear Creek	5K5 5K9 5K10 5K13 5K17	10600 11250 9650 10500 11200	3/29 4/2 4/2	49 49 25 38 50	13.5 13.2 5.9 12.0 13.2	11.2 13.0 5.7 10.7 12.1	17.3 14.7 7.3 11.4 15.3	14.5 18.3 8.1 15.4 19.3	19 13 6 4
COUNTY DIAMER DIVIED									
SOUTH PLATTE RIVER Hoosier Pass Fairplay Jefferson Cr. Geneva Park Antero	6K1 6K2 5K8 5K11 5L1	11400 10000 10100 9750 9200	3/31 3/31 4/1	45 13 39 17 11	12.3 2.5 9.5 5.0 3.1	10.8 0.0 8.8 1.4 1.3	10.6 0.0 8.6 3.0 1.2	12.6 1.0 9.1 4.6 2.9	19 18 15 6 6
ARKANSAS RIVER									
Tennessee Pass Twin Lakes T. La Veta Pass* La Weta Park Fremont Pass Blue Lakes Monarch Pass Saint Elmo (a) Timberline Cooper Hill East Fork Westcliffe	6K2 6K3 5M1 6K7 6K8 5M2 6L4 6L5 6K11 6K16 6K17 5L2	10200 10500 9300 9700 11400 10500 10600 11100 10600 9000	1/2 3/31 3/30 4/1 4/1 4/1 4/5 3/30 3/30	34 32 11 12 53 12 47 27 61 27 31	7.0 6.9 4.4 2.5 14.1 4.4 15.4 7.7 18.4 7.3 8.0 2.9	7.3 9.6 7.7 2.9 13.0 6.7 13.0 8.6 17.0 6.1 6.2 2.6	7.4 8.3 5.7 1.5 17.2 5.1 17.5 NS 22.7 9.6 7.4 3.8	9.5 10.5 8.4 3.5 16.6 6.9 18.5 11.6 22.4	19 19 19 19 19 17 14 6 6 3 3

^{*} On adjacent drainage

NS - No survey

⁽a) - Air observed

TO THE MINE IS THE

					- Calle	un arti	, -	and the second second	
			-			-	-	2	THE PROPERTY
			11111			1			
	· · · · · · · ·			7-7-			1715		
	16+21-00	1.12		7000		n. ur 1 10 rum 1			
			DOI:	1 1 1 1 1	((4.6))			-	7.71 7 1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
							0.0800	Site	10 29 2
								ما والشا المستديد	g da en en ada en en anterior de la compansión de la comp
1 11 1		11					0.020		g de communidad o companyo de la communidad de la communi
3.1		6	746	848	1		0307	PENE.	ner's col
		63	10	Ten.	3.6	334.	11.5		1112-05
2		1,-	74.5	100	36				
	*** *			4					and man on
						4.	05:501-		2310 61/8
17.5		o Ca	11/15		11	5536			
		400							HINT OVERSOON
	0491.8	45	£+		37	2.1		1100	6729
									200 0000
						15.1		1-17	at into a trade
67		144	6.5	6/15		177		2002	
7.1		100	DEE	3672	13	06/4			THE PLANTAGE
	1.61		Total .	24	13	EW.			
E.		100	201	14/2	0.2	DENE	XCL	2845	STILL SHIPING
				•					- 18-
		·	•						125
			0,01	7-12	87.	10/1	BUTTE		and butters!
ER							OWNE		MATERIAL LANSA
			1147	7.3		194		103	
		MIC	1411	Call		53.86	20505	ME	of the base after the
	EARL I	21.	1.11		0.7	23/6			
				•					STATE STATE STATE
			DVII.			400		113	
				3	7.7	25/16	20001		
		4	9,0	3,75		TIVE	22.27		1000000000
		501		7.7	71	194		INT	
		141	T-1	200	IZ	r) d	1059	17.5	Ottable
		•							
		,							BALL SHILL AND
	,	4	6.5		35	3/31	0,72.11	445	TANK MUNICIPAL
	BUOD I		3.5		53	200	10837		AL RESIDENCE AND
91			705	U.J		51\E 51\E 16\E		1/2	Sept Mill N
95	345 345 345 345 345 345 345 345 345	100 Maria			世紀日	IL)E		177.0	Sellin Perc
			10/60	2014	123	LIEVE		800	TRUMS Fast
	2,4	100		3.6.	12	IN	0001	112 A	Mare Labour
	1.07	7.0		201		12.70	07/9/1	135	part brown
	7.57	E	3,3		15	230	CONCR	313	Lat notice de Did
3	114.900	1500	9,55		C7		DOLLE	THAT	maximum 12
6		251	53	Est	7.5				Title someon
-			313	**************************************	NA CHE	36/4	DIFFER	7/18	3595 3146
見る日日日の古としる		648	10000 0000 0000 0000 0000 0000 0000 00	PyS	3.0	514	0005	515	WYZELSZEW)
		77.5							
	8.4								W. Co. and Landon Street, Square, or other party of the land of th

THE LAW PROPERTY AND P. IZ - 10 PUTTOT portune alle (4)

PLATTE-ARKANSAS RIVERS SNOW SURVEYS April 1. 1955

Snow Cover Meagurements												
Design on Brain			Snow Cover Measurements									
Drainage Basin	1,,	Elev.	-		955	Past Record			Years			
and	Number		Date	Snow	Water							
Snow Course		1	of	Depth				nt (In.)				
			Survey	(In.)	(In.)	1954	1953	verage	Record			
		COLOR	ADO - B	IG THOM	pson pro	JECT						
COLORADO RIVER**												
Cameron Pass*	5J1	10300		58	18.9	22.0	18.8	21.7	19			
Phantom Valley	5J4		3/30	35	9.2	9.7	8.2	10.4	19			
Lulu	<i>5</i> J7	10200		46	12.7	14.3	11.3	16.9	17			
N.Inlet Grand L.	5 J9	9000	3/30	34	8.5	6.7	8.4	9.6	17			
Lake Irene	5J10	10600	3/30	64	17.7	17.1	20.4	21.9	17			
Grand Lake	5J19	8600	3/30	35	8.6	6.0	6.0	9.3	6			
WILLOW CREEK Park View*	6J2	0200	3/30	33	7.8	7.1	5 . 8	10.3	19			
Willow Creek	6J5		3/30	43	11.2	11.7	10.5	13.2	17			
Granby	5116	8700		27	7.0	5.7	6.8	8.0	6			
Q1 d11by	7010	0100	4/4	~1	100	201	0.0	0.0	O			
FRAZER RIVER												
Berthoud Pass	5K3	9700	3/31	47	12.6	10.9	13.3	15.9	19			
Arrow	5K6	9900	3/31	35	10.3	8.1	7.9	10.2	17			
Lapland	5K7	9500		38	10.6	8.1	8.7	11.6	17			
Berthoud Summit	5K14	11300		55	15.5	15.1	17.3	18.4	4			
Frazer View	5K15	10600		37	11.0	8.3	11.6	12.9	4			
			.,						·			
BLUE RIVER	(123	771.00	2 /27	١ ٣	70.0	300	30 (70 (3.0			
Hoosier Pass	6K1	11400		45	12.3	10.8	10.6	12.6	19			
Fremont Pass	6K8	11400		53	14.1	13.0	17.2	16.6	19			
Shrine Pass	6K9	10500	3/29	54	13.7	11.5	19.4	17.9	13			
Grizzly Peak	5K9	11250		49	13.2	13.0	14.7	18.3	13			
Frisco	6K13	9300	3/31	29	6.3	4.2	8.3	9.0	4			
Snake River	5K16		3/31	29	6.6	5.0	5.6	9.5	4			
Summit Ranch	6K14	10000		33	8.6	5.8	5.9	9.6	1; 1; 3			
Kokomo	6K18	10600	3/30	40	9.9	8.8	11.0		3			

On adjacent drainage *Above Grandy Reservoir NA - No Survey

1 1 1 16 9 1 . CATT . 21 1 7 -- . . 10 r : 1:

LIST AND LOCATION OF SNOW COURSES

Platte, Arkansas, Colorado and Rio Grande Drainages

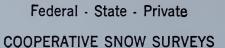
No		Name	Sec.	Twp.	Rge.	Elev.	No	٦.	Name	Sec.	Turn	Рие	Elev.
IAC	•	Cheyenne	500.	149.	ILEO.	DIC.	14.0	•	Upper Colorado	300.	Twp.	Rge.	FIGA.
1	SD	Upper Spearfish	21	3N	1E	6500	12	C	Phantom Valley	7	5N	75W	9300
		• •					16	C	Berthoud Pass	35	28	75W	9700
		North Platte					37	C	M. F. Camp Ground	16	38	77W	9000
7	C	Park View	24	5N	78W	9200	44	C	Fiddler Gulch	1	8\$	80W	11000
8	C	Columbine	21	5N	82W	9300	59	C	Lulu	25	6N	76W	10200
156	C W	Northgate	7 24	11N 14N	7 974 8 574	8500 8200	64 65	C	N. Inlet Grand Lake Lake Irene	26 8	4N 5N	75W 75W	9000 10800
8	W	Bottle Creek Webber Spring	27	14N	85W	9000	69	C	Arrow	34	18	75M	10990
9	M	Old Battle	29	14N	85W	9800	70	C	Lapland	16	2S	767	9500
37	W	North French Creek	27	16N	80W	10200	79	C	Fremont Pass	2	88	76W	11400
38	W	North Barrett Creek	30	16N	8UW	9400	91	C	Lynx Pass	27	SM	88N	8100
39	W	Ryan Park	34	16N	81W	8400	96	C	Shrine Pass	15	6S	75W	10500
67	W	Spring Creek	32	15N	8 SW1	9000	97	C	Grizzly Feak	2	5\$	76W	11250
68	W	Albany	18	14N	78W	9400	102	C	Glen-Mar Ranch	31	2S	77N	8850
71	W	Pearl	18	75N	82W	8900	106	C	konarch Lake	30	2.7	747	8500
							112	C	Granby	11	2N	77₩	8700
		Laremie	_				127	C	Grand Lake	36	4N	75.1	8600
88	C	Roach	5	101	7'/W	9800	138	C	Berthoud Summit	10	2S	75W	11300
111	C	"cIntyre	35	101	76W	9100	139	C	Frazer View	34	2S	75N	10600
3 11	W W	Broowlyn Lake	11 21	16N 13N	78WT	10200 9200	143 146	C	Gore Pass Frisco	2 18	1N 6S	82W 78W	8300 8800
35	'V	Foxpark Libby Lodge	29	15N	78WT	8700	147	C	Snake River	9	5S	76W	5700 5700
د6	W	Hairpin Turn	24	16N	79W	9500	158	C	Summit Ranch	8	4S	78 N	10000
00	-11	ari prii tutti		1011	7511	3000	163	C	Vail Pass	28	58	797	10000
		Sweetwater					167	Ċ	Kokomo	23	7S	79N	10600
29	37	Grannier Macows	19	3JN	100%	9000	168	C	tando	10	7S	8JW	っちじン
47	A	South Pass	13	3ÚN	101%	9000							
57	W	Larson Creek	12	3UN	105W	9000			Roaring Fork				
							33	C	Ind. Fass Tunnel	30	118	82W	10700
		Laramie Peaks Distr					34	C	North Lost Trail	20	118	87 N	9200
38	M	La Bonte	11	27N	74W	8450	45	C	Nast	1	9S	83W	8700
70	W	Boxelder	31	30N	75W	9000	100	C	Ivanhoe	12	ъS	82W	10400
		0 1 1 1 1 1					144	C	Ruby	1	12S	83W	11500
1	С	South Flatte	2	6N	76W	10300			V				
2	C	Chambers Lake	6	7N	75W	9000	6	С	Yampa Dry Lake	26	7N	84W	8300
3	C	Big South	33	8N	75W	8600	9	C	Elk River	21	5N	82W	4900
5	C	East Portal	2	2S	74W	9400	140	C	Routt Line	13	5N	85W	±730
14	Ċ	Hoosier Pass	13	8\$	78W	11400	141	Ċ	Rubbit Ears	30	5N	85N	9550
15	C	Fairplay	33	УS	77W	10000	142	C	Yampa View	21	5N	84W	8500
41	C	Wild Basin	24	3N	74W	10000			1				
50	C	Deadman Hill	26	10N	75W	10200			White				
60	C	University Camp	26	11/1	73W	10300	35	C	Burro Mountain	15	2\$	91W	9000
61	C	Loveland Pass	27	4S	76W	10600	36	C	Rio Blanco	28	lN	85 N	8500
68	C	Hour Glass Lake	18	7N	73W	9500							
83	C	Jefferson Creek	14	7S	76W	10100			Plateau Creek		220		20112
95	C	Hidden Valley	23	5N	75W	9550	56	C	Mesa Lakes	35	118	96W	10000
115 116	C	Deer Ridge	19 21	5N	75W	9050	85	C	Trickle Divide	23	118	94W	10000
117	C	Copeland Lake Empire	21	3N 3S	7 5W	8600 9650			Cunnican Fixor				
118	C	Geneva Park	18	5S 6S	7 4W	9750	18	С	Gunnison River Crested Butte	22	138	86W	ಀ೨೦೦
120	Ċ	Antero	1	138	7'/W	9200	46	C	Park Cone	19	148	82W	9700
128	C	Red Feather	26	10N	74W	9000	53	C	Alexander Lake	2	128	25W	10000
133	0	Moffatt	2	2S	74W	9400	55	C	Snowshoe Mesa	14	13\$	89 N	7500
154	C	Ward	1	lN	75W	9500	58	C	Ironton Park	29	43N	7W	9800
137	C	Berthoud Falls	16	3S	75W	10500	87	C	Park Reservoir	34	118	94W	9500
148	C	Longs Peak	32	4N	75W	10500	89	C	Porphyry Creek	19	49N	6E	10800
156	C	Lost Lake	32	81/	75W	9300	101	C	Kunnah Creek	5	128	95W	10700
34	C	Pole Mountain	35	15N	72W	8700	104	C	Lake City	13	45N	4W	10300
		A sure series Di					132	C	McCiure Pass	1	118	89W	9500
19	C	Arkansas River Tennessee Pass	21	uc.	CI/THE	10200	153	C	Red Mountain	13	42N	RM	11000
21		Twin Lakes Tunnel	21 22	8S 11S	80W 82W	10200 10500			San Juan				
72		Whiskey Creek	26	37.2N	105W	10300	29	C	Upper San Juan	10	37N	1E	10000
74		La Veta Pass	22	28S	70W	9300	30		Silverton	10	41N	7W	9400
78		Four Mile Park	23	118	81W	9700	31		Cascade	12	39N	9 W	8850
81		Blue Lakes	30	318	69W	10000	135		La Plata	4	36N	11W	9700
92		Monarch Pass	16	49 N	6E	10500	149		Spud Mountain	32	40N	8W	10700
119		Saint Elmo	31	158	80W	10600	150		Molas Lake	7	4JN	7W	10500
121		Timberline	8	98	81W	11100	151		Howardville	15	41N	7W	9800
165		Cooper Hill	2	8S	8UW	10600	152	C	Mineral Creek	35	42N	8M	10300
166	C	East Fork	9	88	79W	10700							

-2LIST AND LOCATION OF SNOW COURSES (CONTINUED)

No.	Name	Sec.	Twp.	Rge.	Elev.	No	۰.	Name	Sec.	Twp	Rge.	Elea.
	Dolores							Arizona (Williams)			
23 C	Rico	11	39N	117	8700	7	A	Iron Springs	/ 22	14N	3W	6000
24 C	Telluride	6	42N	8W	8600		A	Willow Ranch	16	21N	1 1W	5000
25 C	Lizzard Head	24	41N	1077	10300	10	n.	WIIIOW MANON	10	211	1114	5555
114 C	Trout Lake	8	41N	9W	9700			Arizona (Lower Co	lorado	١		
114 0	HOUL DAKE	Ü	TIM	- n	3100	9	A	Chalendar	27	22N	3E	7100
	Green					10	A	Grand Canyon	21	30N	4E	7500
23 W	Dutch Joe	33	31N	104W	8700		A	Bright Angel	34	33N	4E	8400
24 W	Mulligan Park	17	35N	108W	8900		Α.	Diigio Aigoi	0.7	OOM	10	0400
25 W	Kendall R. S.	23	38N	1107	7900			Rio Grande				
26 W	Loomis Park	14	37W	111W	8500	26	С	Wolf Creek	4	37N	2E	10000
20 W		15	29N	114W	8040	27	C	Upper Rio Grande	13	40N	4W	9350
28 W	Snyder Basin Piney La Barge	19	29N	114W	8820	47	C	Silver Lakes	15	36N	5E	9600
20 W	blueh ra parke	19	SOM	TT#M	0020	49	C	River Springs	25	33N	6E	9300
	Arizona (Gila)					76	C	Summitville	30	37N	4E	11500
11 NM	Frisco Divide	21	6S	20W	8000	77	C	Cumbres Pass	17	37N	5E	10000
		5	6S	20W	8000	80	C	Santa Maria	8	41N	2W	9700
14 NM	State Line					82	C	Culebra	0		105.2W	10000
22 NM	Taylor Creek	20 6	108	10W	7850	84	C	Fort Garland	17	29N		8200
23 NM	Inman		118	107	7800		•		13 22	29 N 36 N	72W	9950
1 A	Nutrioso	23	6N	30E	8500	108	C	Platoro			4W	
2 A	Beaver Head	13	4N	30E	8000	109	C	West Conejos	25	3 5 N	4E	9450
3 A	Coronado Trail	26	5N	30E	8000	110	C	La · Manga	11	33N	5E	10000
29 A	Rose Canyon	15	128	16E	7300	122	C	Pyramid	26	41N	5W	10300
30 A	Bear Wallow	6	128	16E	8100	123	С	Spring Creek Pass	2	42N	3W	10900
						124	С	Pool Table Mt.	19	41N	2E	10000
	Arizona (Salt)					125	C	Lake Humphrey	32	40N	1E	9300
4 A	McNary	14	8N	23E	7200	126	C	Cochetopa Pass	12	45N	3E	10000
5 A	Forest Dale	2	9N	21E	6000	154	С	Porcupine	2	41N	3W	10400
6 A	Milk Ranch	28	8N	23E	7000	155	C	Wolf Creek Summit	6	37N	2E	11000
20 A	Pacheta				7800							
21 A	Fort Apache	18	7N	27E	9000		NM	Red River	29	281	15E	9500
22 A	Baldy	28	7N	27E	9000		NM	Taos Canyon	10	25N	153	9000
23 A	Maverick Fork	13	6N	27E	9050		NM	Aspen Grove	12	18N	10E	9100
31 A	Workman Creek	33	6N	14E	5860		MM	Hematite Park	8	281	15E	9500
						12		Tres Ritos	23	22N	13E	9000
	Arizona (Little C					15		Payrole	16	28N	7E	9700
12 A	Fort Valley	22	22N	6E	7350	17		Chama Divide			106.7₩	7750
13 A	Mormon Lake	13	18N	8E	7350	18		Chamita			106.7W	8500
19 A	Mormon Mountain	14	18N	8E	7500	19		Cordova	22	22N	13E	10100
						20		Panohuela .	27	19N	12E	8300
	Arizona (Verde)					21		Big Tesuque	17	18N	11E	10000
8 A	Camp Wood	3	16N	6 W	5700	24	NM	Elk Cabin	8	18N	11E	8250
16 A	Antelope Park	29	19N	8E	7300	26		Rio En Medio	8	18N	11E	10400
17 A	Casner Park	19	18N	8E	6930	28		Quemazon	34	ZON	5E	9300
18 A	Munds Park	7	18N	7E	6500	29		Bateman	5	26N	6E	9300
						31	MM	Fenton Hill	18	19N	3W	8900

SD - South Dakota; C - Colorado; W - Wyoming; A - Arizona; NM - New Mexico





Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"WATER IS THE WEST'S GREATEST RESOURCE"